

AMENDMENTS TO THE CLAIMS:

This listing of the claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (currently amended) A composition comprising ~~an enzyme~~ a polymerase comprising a 5' nuclease, wherein said polymerase ~~enzyme~~ comprises a heterologous functional domain, wherein said heterologous functional domain comprises an amino acid sequence that provides improved background specificity in a nucleic acid cleavage assay compared to said polymerase enzyme without said heterologous functional domain.
2. (cancelled)
3. (original) The composition of Claim 2, wherein said 5' nuclease comprises a thermostable 5' nuclease.
4. (cancelled)
5. (currently amended) The composition of Claim ~~[[4]]~~ 1, wherein said polymerase is altered in sequence relative to a naturally occurring sequence of a polymerase such that it exhibits reduced DNA synthetic activity from that of the naturally occurring polymerase.
6. (currently amended) The composition of Claim ~~[[4]]~~ 1, wherein said polymerase comprises a thermostable polymerase.
7. (original) The composition of Claim 6, wherein said thermostable polymerase comprises a polymerase from a *Thermus* species.
8. (currently amended) The composition of Claim 7, wherein said *Thermus*

species is selected from the group consisting of *Thermus aquaticus*, *Thermus flavus*, *Thermus thermophilus*, *Thermus filiformus*, and *Thermus scotoductus*.

9. (cancelled)

10. (original) The composition of Claim 1, wherein said heterologous functional domain comprises an amino acid sequence that provides an improved substrate binding activity in said nucleic acid cleavage assay.

11. (cancelled)

12. (currently amended) The composition of Claim 1, wherein said heterologous functional domain comprises two or more amino acids from a polymerase domain of a second polymerase.

13. (currently amended) The composition of Claim 12, wherein at least one of said two or more amino acids is from a palm region of said polymerase domain of said second polymerase.

14. (currently amended) The composition of Claim 12, wherein at least one of said two or more amino acids is from a thumb region of said polymerase domain of said second polymerase.

15. (currently amended) The composition of Claim 12, wherein said second polymerase comprises *Thermus thermophilus* polymerase.

16. (cancelled)

17. (cancelled)

18. (original) The composition of Claim 1, wherein said nucleic acid cleavage assay comprises cleavage of a DNA member of a substrate containing at least one RNA component.

19. (original) The composition of Claim 1, wherein said nucleic acid cleavage assay comprises an invasive cleavage assay.

20-49. (cancelled)

50. (original) A kit comprising the composition of Claim 1.

51. (original) The kit of Claim 50, further comprising at least one nucleic acid cleavage substrate.

52. (previously amended) The kit of Claim 51, further comprising at least one RNA capable of hybridizing to said nucleic acid cleavage substrate.

53. (original) The kit of Claim 50, further comprising a labeled oligonucleotide.

54. (original) The kit of Claim 50, further comprising an invasive oligonucleotide.

55. (currently amended) A method for cleaving a nucleic acid comprising:

- a) providing:
 - i) the ~~enzyme composition~~ of Claim 1; and
 - ii) a substrate nucleic acid; and
- b) exposing said substrate nucleic acid to said enzyme.

56. (original) The method of Claim 55, wherein said exposing said substrate nucleic acid to said enzyme produces at least one cleavage product.

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57. (original) The method of Claim 56, further comprising the step of c) detecting said cleavage product.